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Rural Lines

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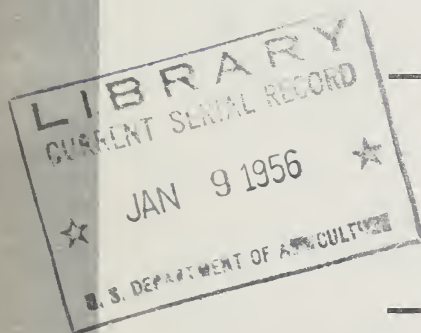
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A Message from the

ADMINISTRATOR

As I go around the country, I take advantage of every opportunity I get to talk to non-REA groups, particularly businessmen. Too often, people in the cities know very little about the REA program and what is being accomplished through it.

Consequently, in my talks to these businessmen, I like to point out how the program helps out the man in the city as well as the farmer who is being served by the electric power that comes over the rural electric systems. I tell about the large amounts farmers invest in wiring, appliances and equipment once electricity is brought out to the farm. I point out how these expenditures reflect themselves in business and in jobs for the workingman.

At a recent service club meeting, after I had finished this kind of talk, a man came up to me and told me that he represented a long established firm that had been manufacturing and selling oil lamps.

My first thought was that here might well be the exception to my story. Undoubtedly, I thought, here was an industry that probably had not been helped by the coming of electricity to the farm.

Much to my surprise, this businessman told me that he was doing more business today than he had ever done before. The company has expanded into the camping equipment field and is actually selling more oil lamps than formerly. The business, which was running about \$6 million a few years ago, is now \$60 million. And they attribute part of the improvement to rural electrification and the stimulus that this has given our whole economy.

So you can see that we have a program that is of interest not only to the farmer but to the entire population.

Arthur Nelson

Administrator.

Building for Load Ahead

Delaware Co-op Adopts Long-Range Plan to Push Future Power Use

There is old proverb that says, "Cut the coat to fit the cloth."

This is what the Delaware Electric Cooperative, Greenwood, Del., has done with its power use program.

Manager Robert Jefferson says the co-op has been experiencing growing pains—in the past 7 years membership has climbed from 2,700 to 8,500 consumers. This has meant top priority for line extensions, heavying up lines, and building new substations.

A good share of the growth was due to bridging of the Delaware River and Chesapeake Bay, which opened up the farming heartland of the state. Along with increase in membership, consumption of electricity has increased steadily.



Manager Robert Jefferson.

Construction now underway, which should be completed by mid-1956, will enable the co-op to meet power demands of its members. Five of the 6 new substations already are installed.

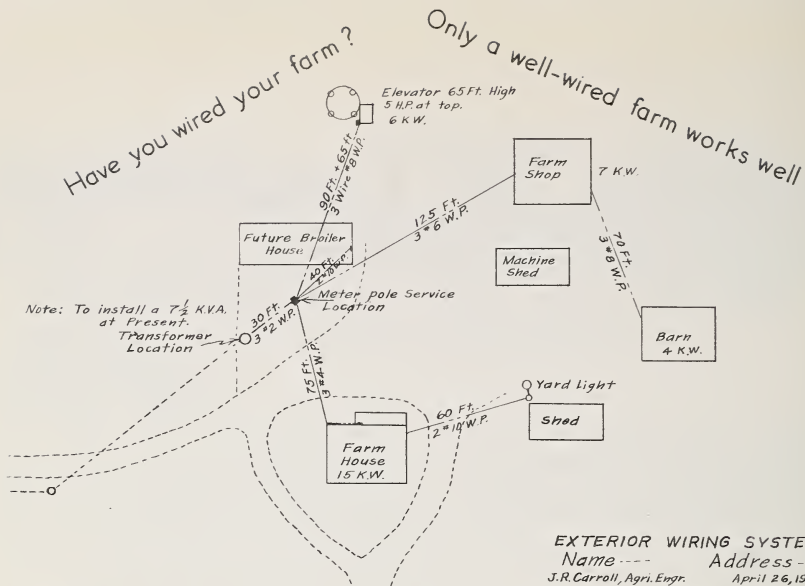
For the present, the co-op must "cut the coat to fit the cloth," but Manager Jefferson and his electrification adviser, James R. Carroll, have been educating for the future—for the time when the system can provide adequate power for all of its members.

They have worked out an education program to prepare their young people for electric farming in a big way. Mr. Carroll works with 4-H Clubs, FFA groups and vocational agriculture teachers, using demonstrations and "do-it-yourself" techniques.

In talking with Mr. Carroll you learn that he has spent a lot of his time in the past few years helping members with their wiring problems. He works out electrification plans for farmers which show in detail the farmer's present and future power needs.

In cooperation with the Delaware vocational agriculture director, Mr. Carroll planned and carried out a highly successful 5-day training course on "Electrification of Home and Farm."

The meeting covered these main topics: Planning the Farm-



Wiring plan used as basis of discussions with farmers and in training young people in adequate wiring principles by Electrification Adviser Carroll.

stead Wiring System, Electric Motors and Controls, and Planning Farmstead Water Systems. Some 18 electric specialists and technicians participated in the sessions which were attended by 33 vo-ag teachers.

Visiting the co-op office, you are surprised to see the various props and gimmicks Mr. Carroll uses in getting electrification instruction across to groups. He agrees some of his demonstrations would qualify as parlor tricks—like the kit which contains spinning cups, tops, rings and balls in a powerful revolving magnetic field. He performs some 75 experiments with the kit to get

across certain points he wants to make about electricity.

Another device is to set up a house plan on flannel cloth, with symbols of outlets placed in various locations. White thread is used to show switching arrangements. With this “chart” he demonstrates the right way to handle lamp cords, plugs, wire and sockets.

Often at training meetings, Mr. Carroll will dismantle each of 4 motors commonly used on farms. He then proceeds to tell about the principal parts and their care and maintenance.

For more advanced groups, he builds circuits on a wiring board, showing the reactions of various sized loads on different wire sizes.

With all of this educational activity, particularly with the young folks who will be running farms “tomorrow,” this system should have a ready-built market matching the capacity it will have available then.



New headquarters for the Delaware Electric Co-op at Greenwood.

Farm Water Systems

With the Inter-Industry Farm Electric Utilization Council's industry-wide promotion of water systems coming up in April and May, rural electric distribution systems are already looking ahead with plans for interesting members in water installations.

Therefore, South Kentucky Rural Electric Cooperative's successful "double-barreled" water system promotion plan is attracting interest throughout Kentucky and in other states.

A year ago, a check by South Kentucky, headquarters at Somerset, Ky., showed that only 1,800, or 14% of the co-op's 13,000 farm families had running water in their homes. The rest still packed water from springs or hand-pumped it from wells.

Today, nearly 600 additional water systems have been installed, and power consumption on many of those farms has doubled or trebled.

Boosting the number of water systems along the 3,100 miles of line served by South Kentucky was not an easy job, as Manager Sam Hord and the co-op's power use advisers, Gilbert Girdler and Herman Schoolcraft, will tell you. Mr. Hord explained it this way to a visitor not long ago.

"Farmers had their own reasons for putting off getting water systems. Some of them blamed things on the shortage of water.

But we explained that every farm has some source of water and that an electric system could be used to tap it.

"There was also the problem of financing. Many members chose refrigerators, ranges, freezers and other appliances ahead of plumbing. There was just so much money to go around and water systems were last on the farmer's buying list.

"And, in talking with farmers, we found that many simply didn't know enough about water systems. They needed a lot of facts."

That was when dealers and



T. J. Gosser, Eubank, is ready for his new electric pump to be installed so he will not have to pump by hand anymore.



Planning by Miss Daisy Miller (left), home economist, and Advisers Herman Schoolcraft (center) and Gilbert Girdler has had a lot to do with the program's success.

local plumbers were asked to meet last year with co-op specialists in Somerset to do something about the situation, he explains.

Those that sat in at the first meeting agreed that dealers had not been pushing sales hard enough and that farmers must be offered an easy way of paying for new water systems.

To get the campaign rolling, South Kentucky teamed up with pump dealers, plumbers, county health departments, the State Extension Service and other organizations to take these steps:

1. A committee of dealers and plumbers, plus Power Use Advisers Girdler and Schoolcraft, worked out standards, using the National Plumbing Code as a guide, and a scale of prices for installing water systems. This arrangement assures members of getting satisfactory quality for the various items at reasonable prices, without having to shop around.

2. REA loaned South Kentucky \$350,000 in Section 5 funds for re-lending to members for purchase of water systems and other appliances.

3. Funds for water system

financing were also made available through Consumers Credit Rural Electric Cooperative, which was set up last November by Kentucky co-ops for financing purchase of electric appliances. (See Rural Lines, March 1955.)

4. The co-op, working with an agricultural engineer employed by the State association of rural electric co-ops, published a booklet which outlined minimum standards for water system installation.

5. Dealers advertised and promoted water systems on their regular radio programs and in local newspapers.

6. Co-op publicity included aggressive promotion via its regular radio program, and featured water system information in its newsletter, "Co-op REA News," and in the statewide "Rural Kentuckian."

In Somerset newspaper ads the co-op spotlighted weekly a list of dealers supporting the water system program.

Water system advertising was keyed to the convenience and advantage of running water in the house, and for livestock and poultry production.

Advisers Girdler and Schoolcraft demonstrated water systems at various meetings, such as farm and veterans' groups. Miss Daisy Miller, co-op home economist, backed them up with her own brand of salesmanship at women's meetings.

Soon, farmers were calling on pump and water system dealers, and making inquiries at the co-op office. They didn't have to wait long for service. Dealers followed up promptly with home calls, and power use advisers helped farmers pick the system best suited to their needs. Girdler and Schoolcraft returned later to the farms to see if pump and plumbing were installed properly.

Most of the newly installed water systems include an electric pump, sink, outside faucet and generally a water heater. Cost of such a system averages \$500.

Says Mr. Hord, "Seventy-five of the water systems installed in our area since June 1954 were financed through the co-op. More new systems are on the way.

"The cooperation of dealers and plumbers in spending more time

and effort to sell members on putting running water in their homes and on the farm has been a big help to the program. Advertising and person-to-person calls on farmers were big factors, too.

"New water systems going in promise to give our average kwh consumption a real lift. Already we've noticed a gain which should grow steadily.

"Look how monthly consumption has gone up for some of our members since installing water systems: Charley Wright, 380 to 575 kwh; Walter Light, 190 to 310 kwh; Frank M. Brown, 50 to 220 kwh; Dan Goff, 50 to 320 kwh; Roy C. Thompson, 330 to 450 kwh and Lucian Blankenship, 200 to 300 kwh."

During the next 20 years, REA estimates that farmers will spend \$24 billion for electric appliances and equipment. This is an average of \$5,300 per farm.

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In the next 5 years, it is estimated by REA that all farmers will spend a little over \$1 billion for lights and house wiring.

Nelsen Attends Geneva Power Conference

Administrator Ancher Nelsen attended the 13th session of the committee on electric power which met in Geneva, Switzerland, early in December. He was the United States delegate to this committee which is one of the principal subsidiary organs established by the United Nations Economic Commission for Europe.

Mr. Nelsen was the principal spokesman for the United States in the meeting of the committee's working party on rural electrification which convened a few days before the committee meeting.

Before the meeting, Mr. Nelsen participated in a field trip sponsored by the Austrian government to visit certain rural electrification installations in Austria, starting at Linz on November 22 and ending at Innsbruck, November 27.



Scene of great fire appears desolate, but is yielding valuable lumber today.

Tillamook Burns KWH

Rural Power Helps Salvage Lumber From Disaster Area

Rural electrification is helping to develop profitable timber enterprises at the scene of one of the greatest fires in history—the 310,000-acre Tillamook Burn in northwest coastal Oregon.

An REA borrower, the Tillamook Public Utility District of Tillamook, Ore., is supplying central station service to several large lumber mills and related industries and a growing number of farm people.

Although it presents a desolate picture for tourists, the big Burn is a busy place with timber salvage crews working most of the year.

Resourceful logging operators with the help of rural power are making a good return from cutting and marketing sturdy, dead trees. Eighty percent of the trees left in the burned-area still stand.

Since the Douglas fir in this section was top quality, even the burned over timber makes high quality lumber and by-products. In fact, the Burn is turning out lots of fir peelers and much of the plywood timber milled in the Pacific Northwest.

The holocaust that struck on a tinder dry day, August 14, 1933, burned over some 12½ billion feet of virgin timber. That was enough to build 600,000 five-room homes. Logging men estimated the stumpage loss at \$25 million at 1933 prices, but today that would probably amount to \$125 million.

In the Trask River Valley, one company cuts some 200,000 board feet a day. In this area around 90 homes and many stores, logging shops and farms are getting electricity from the Tillamook PUD. In the Wilson River area, the PUD

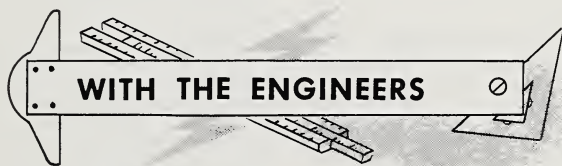
serves 70 rural consumers and 2 lumber companies which together produce 370,000 board feet daily.

You might call the vast Tillamook Burn a "ghost forest" today. Giant fire-blackened trees give the once primeval coastal wilderness an eerie look. Many of the gaunt tree skeletons appear to be gloomy sentinels standing watch on skyline ridges and hillsides.

Down in the southern end of Tillamook county is the area long known for its high-producing

Guernsey and Ayrshire dairy herds. The dairymen get their power from the Tillamook PUD, too.

Tillamook's farm families live in some of the country's most highly electrified homes. They paid an average of 1 cent a kilowatt-hour for power last year, according to the district's manager, Paul F. Hatch. This rate puts the PUD in the "One Cent Club" with 8 other PUDs in the Pacific Northwest.



Standardization keeps pace with changing conditions, it never stands still.

Acoustic tile and plasters vary considerably in their ability to retain their acoustic properties after being painted. When redecorating your office building, choose kind of paint and method of application as recommended by the manufacturer of the acoustic materials.

Some 8,200 different items of materials and equipment appear in the "List of Materials Acceptable for Use on Systems of REA Electrification Borrowers."

Fuel costs amount to 50 to 80% of total electric power production costs.


In most nuclear reactor systems the heat developed in the core is brought out for use by a circulating liquid, often water or liquid metals.

Aluminum windings for transformers are commercially available, but present production costs are greater than for copper windings.



Safety and The Atom

Techniques and Devices Designed to Protect People



A new source of fuel and a set of new questions that have to be answered—

That is what REA borrowers find as they study the possibilities of atomic energy in their power generation.

Not that this is unusual according to REA engineers who have through the years tackled many new problems in order to find ways of building feasible and effective power lines into remote areas. But as atomic power is tremendous, so are some of the questions that have to be worked out.

Take, for example, shielding from radiation, site location, and disposal of atomic waste.

Radiation probably has been publicized more widely than any other aspect of the atomic development. That is probably because everything which comes in

contact with the reactor core becomes radioactive and thus becomes dangerous.

The nuclear fission process, say the engineers, must be "contained" if we are going to use it. They tell us, however, that the idea of containment is not new. Even in the conventional steam plant temperatures and pressures have to be controlled to be of use. But the nuclear process has added something new.

The most important things to be contained in the nuclear fission process are gamma rays and neutrons, because when these are taken care of the other things will have been taken care of, too.

What are gamma rays and neutrons?

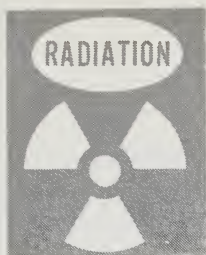
Without the aid of scientific instruments, we cannot know they exist. We cannot feel, smell, see or taste them and if we are exposed to them in quantity we would be fatally exposed before knowing it.

Gamma rays are like x-rays, which are familiar, but they are much more penetrating and more difficult to keep "where they belong."

The neutron is a very small and valuable particle. It also gives trouble in staying in the right place. The neutron has to be kept inside the reactor to do its work in the fission process.

Because of these two things—gamma rays and neutrons—a reactor used in producing electric power must be shielded as a safeguard to the men and materials around it. Men must get close to a reactor to operate and control it,

This is one of a series of basic articles prepared by REA personnel who are cleared for atomic energy work and are engaged in REA's liaison work with the Atomic Energy Commission. The series will deal with the nature of atomic energy and its use in producing electric power.



but equipment has been designed to permit operation through the shield by "remote control."

The shielding is usually in two parts to meet specific requirements. One part is the thermal or heat shield and the other the biological shield.

The thermal shield is closest to the center of the reactor and therefore is exposed to the greatest concentration of gamma rays and neutrons. Usually it is made of steel and in powerful reactors it is often water cooled. The cooling is necessary since the gamma rays produce heat in the thermal shield in much the same way as the sun does when it shines on an object. The water used for cooling also is an excellent shielding material.

The outside shield is called the biological shield and it may be made of several different materials. Sometimes it is concrete, often made with heavy aggregates. These aggregates are most effective in stopping gamma rays and neutrons, and are useful in reducing the size of the structure. Sometimes, additional shielding is achieved by burying the reactor.

When the shields are designed every effort is made to have both the thermal and biological shield serve additional purposes. For ex-

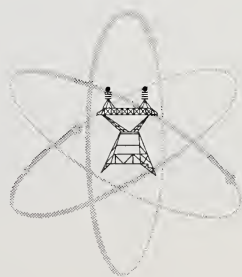
ample, the tank containing the reactor may be made of steel to serve as the thermal shield, while the supporting concrete structure may also serve as the biological shield.

Where space and weight are not serious problems, the main consideration is to make the shielding as economical as possible while still maintaining ample safety for the people who must work with the reactor.

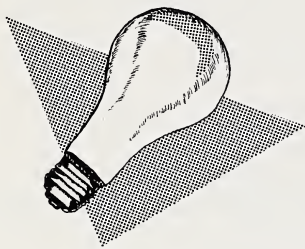
In addition to the shields surrounding the reactor itself, shielding must be provided when components are removed from the reactor. Often, the part removed is stored under water until its radiation level has subsided. Sometimes essential work is done with the part while it is under water.

In some reactors, known as the swimming pool type, water is used alone for all shielding requirements as well as for the coolant. However, the swimming pool type reactor operates at very low power levels and is used only for instruction and research.

Shielding has received considerable attention from the scientists and engineers, and they are continuing to look diligently for ways to reduce the space and weight required for shielding.



Members of the **Co-op Electric Company**, St. Ansgar, Iowa, can win a 100-watt bulb without going any place or answering any quizzes. When the serviceman comes to inspect the wiring or to install an appliance, he checks all light sockets. If all are filled with bulbs that will light, he gives the member a free 100-watt bulb.



Buena Vista County Rural Electric Cooperative, Storm Lake, Iowa, has again adopted the policy of giving free electricity on installation of certain appliances. For first installations of electric ranges and water heaters between October 1, 1955, and March 31, 1956, members will receive 100 kwh a month for 6 months. They will receive 50 kwh free each month for 6 months on first installation of cloths dryers and freezers.

Eastern Iowa Light and Power Cooperative, Wilton Junction, Iowa, F. E. Fair, manager, reports on use of electric heaters to keep stock water free from ice during winter months.

A unit on the Ray Creelman farm near Oakville was metered during one of last winter's coldest weeks, when the temperature hovered around zero and was above freezing only once. At $1\frac{1}{2}$ cents per kwh, the 15 kwh used during

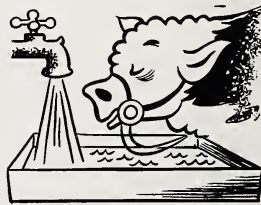
POW EXC



the week cost 23 cents. The grateful livestock, with ample supplies of ice-free water, maintain production, the co-op reports.

"Automatic Livestock Waterers" is the title of the most recent bulletin issued by the Agricultural Research Service in its "Live better, farm better with electricity" series.

The bulletin presents information on selection, installation, operation and cost of various types of automatic waterers. It is Leaflet No. 395, and may be ordered from the U. S. Department of Agriculture, Washington 25, D. C.



Have you seen the U. S. Department of Agriculture bulletin on **"Farm Methods of Cooling Milk"**? Milk that is not cooled promptly deteriorates rapidly and usually brings a lower price than milk that is properly cooled. This 20-page bulletin has many excellent illustrations of the various types

R USE ANGE



of milk cooling equipment available to the dairyman. However, you will want to consult your power supplier before purchasing special equipment. This bulletin is USDA Farmers' Bulletin 2079, and may be ordered from the U. S. Department of Agriculture, Washington 25, D. C.

A 92 percent return from a recent appliance survey was obtained by **Southwest Central Rural Electric Cooperative** of Indiana, Pa.

This high percentage was obtained by using the blank side of the monthly meter cards. A message on the back of one of the monthly meter cards reads: "Due to the unexpected increase in use of power, we must make a new system study. Please check equipment as shown." Following is a list of 18 major electric appliances with separate columns to be checked by the consumer—"Have Now" and "Will Buy This Year." Some 6,700 members responded to the query.

Servant's Entrance, 1955

The Duck River Electric Membership Corp., Shelbyville, Tenn., promotes adequate wiring with this reference to electric "servant." Here, George Norvell, service supervisor for the Manchester area served by the co-op, checks the service entrance cable to the residence of W. T. Toms, New Union community. Mr. Toms has a 200-amp main disconnect switch to accommodate his present electrical load with a few spare circuits for future use. This picture is taken from "Co-op News," which Duck River sends monthly to its members.



PIONEER

Many people sincerely felt in the early days of the REA program that the broad stretch of northern Wisconsin extending along the shoreline of mighty Lake Superior was too poor economically to support rural electrification.

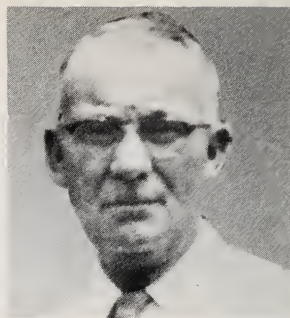
But not Judge John Shykes. With a handful of cooperating neighbors in Bayfield and Ashland counties, he set out to promote an electric system despite these challenges.

Reaching out over 6 counties, the area is speckled with pretty lakes but heavily wooded and much of the land is submarginal for farming.

Although the Bayfield Electric Cooperative, Iron River, was not organized until 1940, and construction faced repeated delays during World War II, today it serves over 3,000 members on almost 1,100 miles of line.

Throughout its development, Judge Shykes has been an influential leader in welding it together.

Judge Shykes recalls: "Those first years we undertook a large order. Many times it was daylight when we adjourned from organizational meetings which were prolonged by protestations from those who argued the whole idea was not practical. We were either a very stubborn or very optimistic bunch. I don't know which. I only know that the cooperative today



Judge John Shykes.

is providing highly successful service and we are on the brink of completing area coverage here."

Judge Shykes has served as secretary and vice president, and is now president of the board of directors. In addition, he has been active in the statewide program as a member of the Wisconsin Electric Cooperative board, and as a member of the state labor committee.

Born in Illinois 58 years ago, he moved to northern Wisconsin in 1935 to take over operations of his 280-acre dairy and sheep ranch. Before that he had been a skilled auto mechanic and a night engineer for a municipal power plant in North Dakota.

Serving in public capacities is nothing new to Judge Shykes. When he was appointed judge of the Second Municipal Court of Bayfield county 2 years ago, he had to resign as chairman of his town after serving 15 years and as a member of the county board, chairman of the forestry and agricultural committees, and president of the Bayfield County Fair Association.

The persons featured on this page have played key roles in bringing rural electric service to their own communities, thus helping their neighbors receive the benefits of electric power. This page also acknowledges the contributions of those many others who are nameless to us, but known to many of our readers. We salute all of our pioneers.

SAFETY



Training for Hot Line Work

More than half of the states with State Safety and Job Training programs have set up special training for "hot line" work. "Hot line" work enables linemen to make repairs such as changeouts of poles and transformers, without interruption of consumer service.

Safety instructors say that whereas proper training of the crews is always important, it is vital in hot line work.

These pictures were made at the Steuben Rural Electric Cooperative, Bath, N. Y., while its 4-man field crew was being trained in "hot stick" techniques.

"Our first job is to give our 1,400 members efficient, continuous service," says Gordon Margeson, manager. "We have already installed 5 substations within the past few years and are gradually heavying up our lines in Steuben and Schuyler counties. Our new substations have cut down the number of outages and we figure

our new hot stick equipment will help even more."

In the first picture, Manager Margeson watches as crew members (left to right), Alfred Dassance, line foreman, Merle Judd, Walter Burgess and Lloyd Buchanan, select and inspect equipment.

Next, the group discusses the "how-to" of the specific job.

In the third picture, Walter Burgess (left) and Lloyd Buchanan are at work on the pole, properly equipped with hard hats, rubber gloves, and hand line.



Safety (continued)



Safety reminder reprinted from "Sooner News," Oklahoma safety newsletter.

"The Gun That Wasn't Loaded"

The following excerpt from "Sooner News," the Oklahoma Job Training and Safety newsletter, reports on an accident which took place in Louisiana. It is a parallel to the shooting accidents which happen every year by someone handling the "gun that wasn't loaded." Here is the item:

"Today I received a nice letter from my good friend, C. A. Braud, instructor for the state of Louisiana. . . . Mr. Braud tells me that every outside cooperative employee in Louisiana is wearing hard hats and that he was convinced that the men were sold on the use of rubber gloves and protective grounds.

"At one of the Louisiana cooperatives the men were doing some work on what everyone thought was a dead line. Knowing the line was dead no one took the time to install protective grounds and as a result one of the linemen lost his life by trying to work an ener-

gized 76-kv line that everyone knew was dead. Going to this man's funeral will take time but I am wondering how many protective grounds could be installed in the same length of time."

Beaver Country

A large number of Kootenai members did without power for 3 hours one day not long ago because a couple of busy beavers gnawed a tree down across all 3 phases of the co-op line where it goes past the pond on the Ezra Whitla place near Coeur d'Alene.

. . . It cost quite a bit of money for the crew to restore the conductor and move the downed tree out of the way.

Day or two later, the same thing happened. Same farm; same beavers; another tree. This time the crew, after restoring service, looked around a bit and cut down all the trees within reach of the power lines, just in case the beavers had future designs on them . . .

Mr. Whitla, on whose farm this skirmish took place, in addition to being a farmer, is attorney for Kootenai Rural Electrification Association at Coeur d'Alene. It was explained that under the law beavers are a minority group with constitutional rights and the co-op can do nothing about them. A farmer, on whose place a beaver pond exists, can petition the state to send in a hunter to trap the critters; but he must clearly show that they are a clear and present danger to him. The last we heard, Attorney Whitla was going to take the matter up with Farmer Whitla. Everyone around the co-op office is holding his breath to see if the case winds up in court.

(From the Northwest Ruralite.)

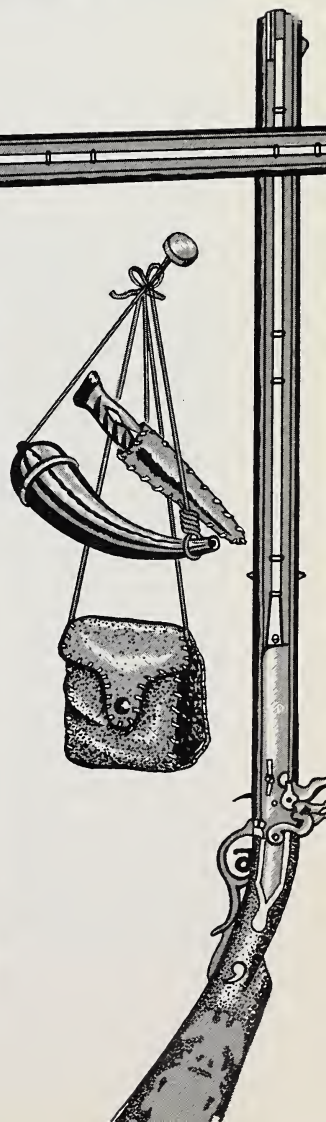
Rural Lines

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Daniel Boone never dreamed of anything like this! A telephone recently was installed by an REA borrower, the Yadkin Valley Telephone Membership Corp., Yadkinville, N. C., in this 122-year-old cabin which Daniel's father helped to build. Still on the floor is the hide of a black panther which Daniel had killed and given to the owner. Another REA borrower, Davie Electric Membership Corp., Mocksville, supplies electric service. (Photograph supplied by E. P. Holmes, Charlotte, N. C.)



Telephony In Kansas

State College Report on
Rural Service Cites
W. E. G. Company

An REA borrower in Kansas is the subject of a special study and bulletin on rural telephones made by the State Agricultural College.

The borrower is the W. E. G. Dial Telephone, Inc., of Gardner, and the president is Ross Gault. The bulletin, published by the Kansas Agricultural Experiment Station, is "Kansas Rural Institutions: Rural Telephone Company."

F. D. Farrell, author of the bulletin and Professor Emeritus of Rural Institutions at Kansas State College, Manhattan, considers the changing status of rural service in Kansas over the years, and uses the W. E. G. Company to delineate the growth of modern service in the state.

The study begins with this premise: "Economic and social well-being of rural people requires facilities for communication. Good telephone service is one of the most useful of these facilities. Increasing agricultural specialization increases interdependence.

This brings greater need for the farmer to communicate with his neighbors and with a variety of townspeople upon whom he depends for goods and services."

Most of the bulletin is devoted to the history, problems and solving of problems of the W. E. G. company. The author says that Mr. Gault brought a new attitude to the area when he bought the company in 1944. "He believed not only that rural people need and deserve good telephone service but also that, given such service, they are both able and willing to pay for it."

In describing some of the early days of the predecessor companies to the W. E. G. Dial, the author describes the horse-and-buggy days of rural service, which, he says, ended in 1919, with the purchase of the company's first automobile.

During these early years, expenditures for plant maintenance and improvements were neglected in favor of dividends for stockholders. Mr. Gault was faced with the difficult task of rehabilitating a plant that was both inadequate and ill maintained, to provide the good service of its present standards.

W. E. G. signed its first loan contract with REA in December 1951. This loan was for installation of modern automatic dial service and extension of lines. The company now has 3 automatic dial exchanges serving more than 1,500 subscribers over some 300 miles of line. A recent loan provides for acquisition and modernization of another exchange at Overbrook. When this work is completed, W. E. G. will be serving nearly 2,200 subscribers.

Telephone Surveys

Market Forecasts Show You Where And What to Build

Is your system bulging at the seams? Or are you faced with having built lines to serve subscribers who did not take service? Or are you Mr. In-Between?

According to REA loan specialists, all three situations exist among REA borrowers. The area coverage survey, introduced early in 1952 as a loan requirement, was designed to help borrowers build to a comfortable in-between as opposed to the two extremes. It is a systematic way of going about forecasting the telephone market.

Market surveys are today an established principle of business operation. The area coverage survey is the telephone man's market survey. The "how much," "where," and "what kind" of telephone plant are the must questions to be answered in designing a telephone system. REA requires such a survey before passing on the feasibility of a telephone loan application.

The loan specialists are quick to point out that the area coverage survey is not only needed to obtain an REA loan, but should be made whenever a borrower contemplates extension of service into an unserved area or plans to add to existing facilities.

Periodic surveys keep the management aware of its telephone market—whether it is due for rapid expansion in one area, approximately what type of service

will be required, and other factors that would influence the planning of the system.

There is no substitute for a systematic house-to-house canvass to determine immediate telephone needs and to help anticipate future demand.

The whole future of a successful telephone operation is built on a good market forecast, according



to REA telephone specialists. It provides information that will spot the revenue-producing sources, the location of subscribers, their concentration in communities and shopping centers, and the quality as well as quantity of service wanted.

What happens without the survey?

There is one REA borrower which cut over its system before

the survey was a pre-loan requirement. Today, the owner has to deal with irate would-be subscribers who cannot get service and his held orders are nearly double the number of existing subscribers. In 2 years he has reached estimates made in his 5-year forecast.

Another owner in similar straits reported that he would not go out on the street at night because people demanding service would be lying in wait for him.

Relieving plant inadequacy of this kind is far more expensive than if the job had been done properly in the first place.

At the other extreme, is the company which failed to canvass its area properly and was over-optimistic on the extent of local service needs. Such over-capitalization of plant results in higher rates for subscribers.

Both extremes could have been prevented or minimized had carefully prepared surveys been made before specifications for plant were drawn up for construction.

The survey procedure involves, first, an orderly count and classification of all possible telephone customers in the territory to be served. This count and classification is obtained from riding the roads and examining the area. This should be followed by or undertaken along with a complete canvass of potential subscribers. This means identifying every business and residential establishment as an existing or prospective telephone customer.

The second part of the survey involves interviews with community leaders and business people. Population and housing movement need to be predicted at this stage of the work. The borrower then

analyzes the data collected from the canvass, the count of unserved households, the interview results, and related economic and social statistics, to make an objective forecast of telephone needs in the area.

If you are contemplating building into a new territory, here are the simple, basic steps you would take in making a survey:

1. Be prepared. Before starting out, have good base maps of the new territory, and outline the work to be done.

2. Ride the roads, to enumerate and classify telephone prospects. This is most effectively and efficiently done together with a canvass.

3. Study local conditions. If you are going into territory with its own shopping center, interview business and community leaders in regard to new housing and industrial growth.

4. Study trends. Find out if there is a shift in population, and the number of homes in the service area.

5. Put all the pieces together. At this stage, decide on the proportion of the unserved, unsigned prospects likely to take service and what growth will occur beyond this point. This is the stage at which your own experience is your best experience, and your own good judgment comes into play.

Guiding suggestions on the why and hows of an area coverage survey are detailed in REA Bulletin 322-1R1, which is being distributed to borrowers. It tells what to do, how to do it, who should do it, and provides samples of completed surveys.



**This Telephone Company Improved
Service and Operating Efficiency With**

All-Out Modernization

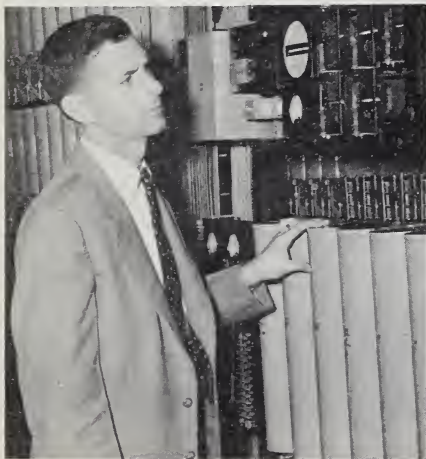
This is a story of modernization.

Not only modernization of telephone facilities, but also of office and outside plant equipment to provide good telephone service with efficient use of time and labor.

Owners of West Jersey Telephone Company, Belvidere, N. J., with 5 new automatic dial exchanges, have seen to it that their working tools have kept up-to-date with the modernization of their telephone plant.

Craig Vail, treasurer and son of company president, C. Wallace Vail, likes to contrast the present situation with the drab conditions he found when he first visited West Jersey's old offices in downtown Belvidere.

Manager Craig Vail checks some of West Jersey's modern automatic equipment.



"I went to work for the company when I was fresh out of the Navy in 1945," he recalls. "My office consisted of a battered desk with tin ash tray and a chair or two. The room was lighted by a single light globe."

Today, when you visit West Jersey's offices in Belvidere, you see a modernized, 130-year-old colonial mansion. Here is located the company's last visible link with its early system—a common battery, manually operated toll board.

This old home, a showplace in the Belvidere county seat, was re-decorated and refurnished from top to bottom. Instead of single light bulbs there are numerous fluorescent fixtures. The spacious rooms provide ample working space for employees.

One major contrast between the past and the present is the change in outside equipment. The day Craig Vail started to work for West Jersey, mobile equipment consisted of an old truck with make-shift pole-setting gear and a small panel truck.

Since swinging into its modernization program, the company has purchased new mobile equipment whenever it spelled a speed-up in routine jobs or increased operating efficiency.

Today, West Jersey's equipment used to service subscribers includes: A 2-ton and a 1½-ton line truck each with 6-man cab and



Linemen unload materials from a new specially-equipped telephone truck.

double drum winch for pole line and cable construction work; a 1-ton aerial ladder brush-trimming truck; a 1-ton hydraulic pole digger; 6 half-ton maintenance and installer trucks; mobile air com-

pressor with jack for rock digging and blasting; cable trailer for reels and cable construction work; pole trailer for transporting poles; generator for emergency power supply; and 3 motor-driven chain saws for line clearing.

Modern office equipment helps West Jersey's clerical staff get routine jobs done better and more quickly.

West Jersey's office manager, M. S. Phillips, sums up some of the company's office procedures:

"We use a self-sealing type of coin box which is sealed at the office before being installed in a pay station. The used coin receptacle locks automatically when it is taken from the box. At the office a machine sorts pay station coins, and another machine counts and packages the money.

"Our billing machine prints the subscriber's bill and ledger card in one operation. The bill shows local service, previous month's toll calls, federal tax, and miscellaneous charges and credits.



This 130-year-old home houses the West Jersey Telephone Company at Belvidere.

"We have found our micro-film outfit very helpful, too, and keep a permanent film file of our subscriber's toll tickets."

West Jersey, a 35-year-old company, did not get around to full-scale rebuilding and improvement of its system until about 1951. At that time the 1,200 subscribers were being served by magneto operated boards.

The Vails started on their modernization program with short term loans. Later, with \$1.2 million in REA telephone funds they began changing over the Oxford, Great Meadows, Hope, Blairstown and Columbia exchanges to dial.

West Jersey's 175-square-mile service area includes 3,400 stations and 2,900 subscribers. The system numbers 390 pole miles of line, some 60 of which are cable.

Today, the company is self-sustaining and works out its technical problems without outside help. That means that the 22-man outside plant crew is trained to handle such jobs as blasting, splicing and tree-trimming.

West Jersey's next goal is to cut over the Belvidere toll center to dial equipment. Toll calls are averaging about 35,000 a month, and, dollar-wise, represent better than half of company revenues.

County Fair Exhibit

This is the booth of the Western Iowa Telephone Association, L. L. Anderson, manager, at the Woodbury County Fair in Moville, Iowa, last fall. The REA booklet, "A Telephone for Your Farm," was prominently displayed along with colored telephone sets, outside bells, jacks, extensions, buzzers, and pin-up telephones. An interesting part of the exhibit was a dial board showing complete operation of equipment when dialing. This exhibit cost less than \$50.



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\$ 570,000 Northwestern Electric Co-op,
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2,020,000 Pennyryle Rural Electric
Co-op, Hopkinsville, Ky.
970,000 C & I Rural Electric Co-op,
Star City, Ark.
1,355,000 Northwest Iowa Power Co-op,
LeMars, Iowa
395,000 Central Electric Power As-
sociation, Carthage, Miss.
510,000 Meade County Rural Elec-
tric Co-op, Brandenburg, Ky.
520,000 Illinois Rural Electric Co.,
Winchester, Ill.
320,000 Big Horn Rural Electric Co.,
Basin, Wyo.
95,000 Mid-South Electric Co-op,
Navasota, Texas
400,000 San Bernard Electric Co-op,
Bellville, Texas
320,000 Clay County Electric Co-op,
Corning, Ark.
320,000 Horry Electric Cooperative,
Conway, S. C.
750,000 Licking Valley Rural Elec-
tric Co-op, West Liberty, Ky.
* 50,000 Beltrami Electric Coopera-
tive, Bemidji, Minn.
399,000 Lamb County Electric Co-op,
Littlefield, Texas
335,000 Colquitt County Rural Elec-
tric Co., Moultrie, Ga.
* 100,000 Roosevelt County Electric
Co-op, Portales, N. Mex.

* - Includes Section 5 funds.

\$ 175,000 Homer Electric Association,
Homer, Alaska
90,000 McLean Electric Coopera-
tive, Garrison, N. Dak.
* 100,000 Okefenokee Rural Electric
Membership Corp.,
Nahunta, Ga.

Telephone

\$795,000 Federation of Independent
Telephone Exchanges,
Dallas, Texas
154,000 Aberdeen Telephone Com-
pany, Aberdeen, Idaho
186,000 Bowman Telephone Com-
pany, Bowman, S. C.
665,000 The American Communica-
tion Co., Haddam, Kans.
101,000 Vernon Telephone Cooper-
ative, Westby, Wis.
344,000 West River Mutual Aid Tele-
phone Corp., Hazen, N. Dak.
337,000 Harold Telephone Company,
Harold, Ky.
435,000 The Inter-County Telephone
Co., Gallatin, Mo.
21,000 Santa Rosa Telephone Co-
op, Vernon, Texas
524,000 Nelson Telephone Cooper-
ative, Durand, Wis.
460,000 Home Telephone Company,
Moncks Corner, S. C.